LAND AND PEOPLES OF THE HADHRAMAUT, ADEN PROTECTORATE

Ruthven W. Pike

ALTHOUGH Southern Arabia borders on the much-traveled route to India and ocean liners daily touch its shore at the port of Aden, it has been little reconnoitered, far less than the northern part of the peninsula. A chronological account of exploration in the part of Southern Arabia known as the Hadhramaut, by Mr. W. H. Ingrams (now Chief Secretary in Aden), appeared in the *Geographical Review* for October, 1938. It is entirely due to the tactful and untiring efforts of Mr. and Mrs. Ingrams, who, with the coöperation of Seiyid Abu Bekr al Kaf, member of the wealthiest family in the Hadhramaut, have succeeded in establishing peace and understanding among the many tribes of the region, that it is now possible for a European to journey unmolested within prescribed regions.

The boundaries of the Aden Protectorate, of which the Hadhramaut is a part, extend into heretofore unexplored territory and have not been surveyed in the manner customary in settled areas. The limits are well understood, however. They are formed by the Gulf of Aden on the south, the district of Dhufar on the east, the southern margin of the great interior sandy desert of Rub' al Khali on the north, and a line running N 45° E from Perim Island to the Rub' al Khali on the west.

The population is densest near Aden and its mountainous hinterland. There are, however, a great many people to the east of Aden, who live along the coast and in the interior of the Hadhramaut; Mr. Ingrams estimates their number at 260,000. There are also many towns and villages between the mouth of the Wadi Maseila and the Dhufar Coast, with a population thought to be about 25,000. Mukalla, with 16,000 inhabitants, is the chief port of the Hadhramaut and seat of the British Colonial Administration for the surrounding area.

Climate

The climate at sea level between October and April is healthful and agreeable to one accustomed to living in temperate regions. On the interior plateau, or Jol, at altitudes of 3000 to 4000 feet, and in the Wadi Hadhramaut, at 2000 feet, the nights are cool, with minimum temperatures reaching 50° F., and are apt to be windy. At such times ordinary summer clothing and light bedding do not afford enough protection.

From April on, the average and maximum daily temperatures

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mount steadily, until travel at midday becomes unpleasant and is not even practiced by the thoroughly accustomed Bedouins. At the peak of summer, travel is reduced to a minimum, and that undertaken only at night, probably more out of consideration for the Bedouin's valued beast of burden than for himself. A period of extreme heat lasting about forty days, known as the "arbainia" (*arba*, Arabic for "four"), usually begins about May 4, and there is another period of eight days later in the year.

The atmosphere, especially on the Jol, is exceptionally clear, save when an occasional dust storm darkens the sky. The dust storms affect large areas, for the wind-borne material is fine and easily distributed; but they do not extend to high altitudes. Fliers over the Jol report that at a few thousand feet above ground level the air normally remains clear. When moisture-laden winds are blowing landward from the Gulf of Aden, cloud banks cover the narrow coastal zone between the sea and the precipitous margin of the interior plateau.

Few or no instrumental data are at hand regarding rainfall in this part of Arabia. Heald, who reported on the agriculture of the Hadhramaut in 1921, says:

> The rain-fall along the coast is practically nil, some years they have one or two inches, but useless for agriculture, the floods being from the interior rain a long distance from Mukalla; when we were in the district from December to April, we had two or three showers, but every time too small for the rain gauge to measure.[1]

The Plateau and Its Borders

In the Hadhramaut the narrow, sandy coast is bordered by a belt of mountains 30 miles wide. At the western edge of the Hadhramaut, about 100 miles east of Aden, rugged coast ranges rise to 7000 or 8000 feet. They are succeeded on the east by slightly lower table-topped and scarp-bounded mountains, whose height gradually decreases to about 2000 feet at Ras Fartak.

Between these mountains and the interior desert of Rub' al Khali, the southern border of which runs parallel to the coast at a distance of 200 miles, stretches a highly dissected and terraced tableland, sloping very gently to the north and east. Dissection is greatest in the Hadhramaut, Maseila, and Hafif drainage basins; the fringe of the interior desert shows considerably less erosion. The eastward slope of the plateau has an average gradient of 1 in 500 (in the 610 kilometers between Hafif and Shabwa the surface rises from sea level to 1200 meters). The over-all northward component of slope is less, perhaps 1 in 1000; it cannot be determined because the altitude of the Rub' al Khali is not known. The gradient is not uniform,

[1] Quoted by W. H. Ingrams: A Report on the Social, Economic and Political Condition of the Hadhramaut, *Colonial No. 123*, London, 1936, p. 8.

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however. The floor of the Hadhramaut Valley rises at a slope of 1 in 900 or 1000 from an altitude of 2000 feet at Tarim to about 3000 feet in the latitude of Shabwa and the west end of the tableland. 133

The observer in the Hadhramaut is impressed by the vast amount of rapid erosion that has taken place and the inadequacy of the rain- 130

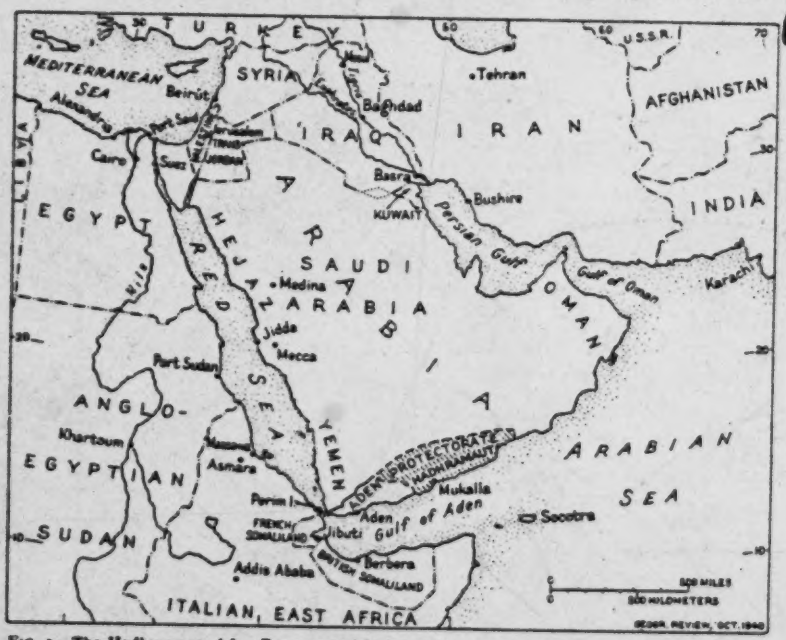

FIG. 1—The Hadhramaut, Aden Protectorate, in its wider strategic relations. Scale 1: 40,000,000.

fall of today to explain it. Not only topographical but also cultural evidence points toward increasing aridity in the Hadhramaut. The numerous visible ruins, not to mention those buried by sand or disintegrated past recognition, are indicative of a greater population than now exists. A large number of the present-day inhabitants emigrate; and, according to Mr. Ingrams, they have been doing so at an increasing rate during the last fifty years.[2] It is suggested that the Hadhramaut area supports about the maximum population under the prevailing conditions of rainfall. 167 161

Each of the canyons excavated by the Wadi Hadhramaut and its tributaries in the vast South Arabian plateau suggests to the traveler a miniature Grand Canyon. The walls rise steeply for a full thousand feet throughout the deepest part of the drainage system and remain perpendicular, although decreasing in height, even to the heads of the smallest tributaries. To the observer on the ground the plateau 133

[2] W. H. Ingrams: Hadhramaut: A Journey to the Seiʾar Country and through the Wadi Masila. *Geogr. Journ.*, Vol. 88, 1936, pp. 524–551; reference on p. 527. 113

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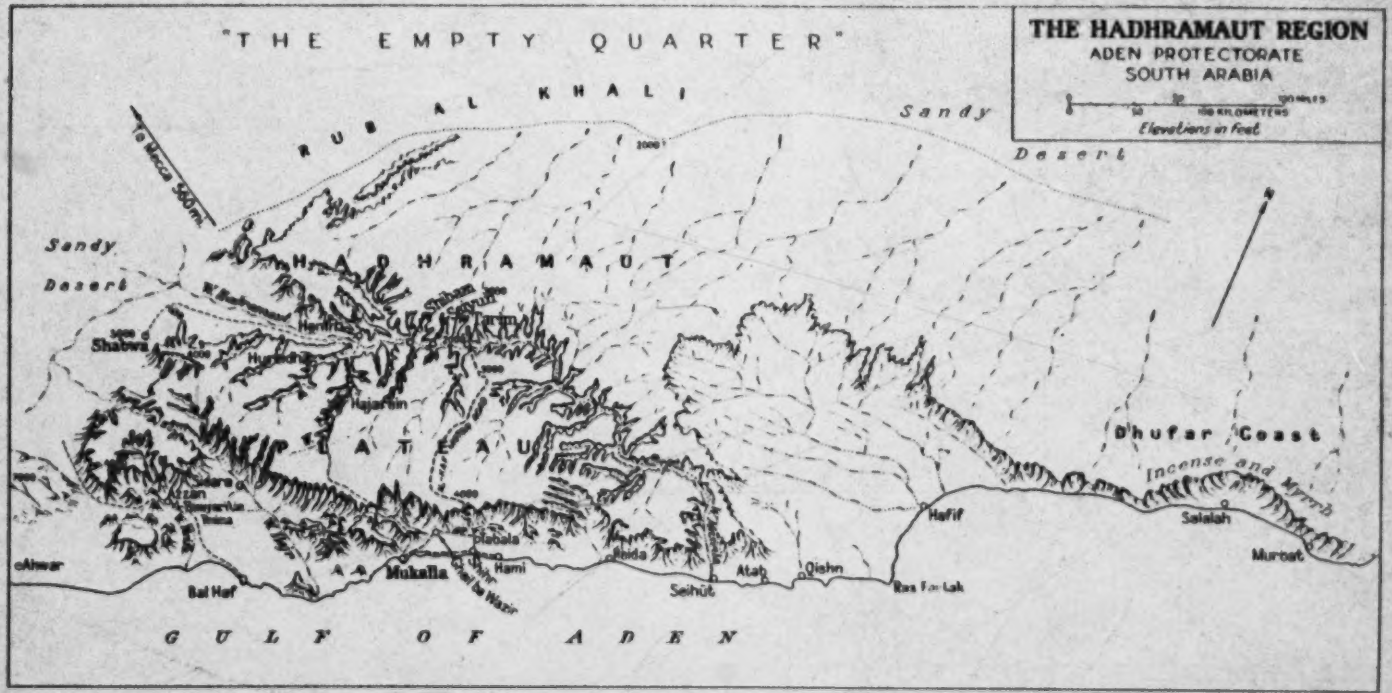

FIG. 2—Diagrammatic sketch of the Hadhramaut illustrating the dissection of the plateau by the main wadi and its tributaries and the relation to other drainage systems. Mukalla is about 300 miles east-northeast of Aden, in 14° 32′ N. and 49° 07′ E. (See Fig. 1).

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133 presents the appearance of an undissected plain stretching to the horizon, broken here and there by flat-topped, isolated hills and extensive rock terraces. Only by a campaign of "trial and error" can one find where the drainage divides are and the limitations the drainage imposes on freedom of movement in this treeless and apparently obstacle-free terrain. Even the smallest wadi constitutes a formidable obstacle; for should descent be possible, the chances of finding a route to scramble up the opposite wall are small. With
487 almost limitless time at their disposal, the Bedouins have obtained a comprehensive picture of the stream system and have adjusted their caravan routes accordingly, utilizing the relatively few suitable passes from wadi level to plateau level. From a distance these century-old trails appear as inconspicuous paths; yet along the passes and narrow parts of present caravan routes, some of which are thought to be identical with the incense roads of antiquity, one may observe that once-jagged rocks have been rounded and polished by the passage of countless unshod men and soft-footed camels during several thousand years.

Hadhramaut–Maseila Drainage System

133 The drainage of the Hadhramaut is divisible into four systems: (1) Wadi Hadhramaut–Wadi Maseila; (2) streams flowing north to the interior basin of the Rub' al Khali desert; (3) eastward-flowing streams entering the sea on the Hafif coast; (4) small and short streams tributary to the Gulf of Aden.

To the west of Tarim the main stream is known as the Wadi Hadhramaut, to the east as the Wadi Maseila. It has been explored on foot by Mr. and Mrs. Ingrams for 360 miles from its mouth to the longitude of Shabwa, where the valley walls, 1000 feet high, diverge and flare off to the north and south, leaving a sandy, featureless plain, studded with low dunes and occasional salt-incrusted flats, stretching westward toward the mountains of Yemen, 200 miles away.

For much of the distance below Tarim the water flows above ground; but upstream the bed is dry and water must be obtained
[312 from wells 30 to 45 feet deep. The supply seems adequate for present-
132] day domestic and irrigation requirements, and acute water shortages are uncommon. During the summer there is some rain in the interior, especially in the mountains of Yemen, and water then flows down the valley all the way to the coast, at times becoming a flood. It is suggested that the present direction of flow of the Wadi Hadhramaut may have been achieved in recent time through piracy by a rapidly eroding stream flowing south to the coast, which has succeeded in diverting drainage that formerly flowed westward into the Rub' al Khali via the broad western part of the valley.

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FIG. 3.—The Wadi Hadhramaut at Tarim, looking eastward, i.e., downstream. Tarim, surrounded by no wall, is at the left. Trees in the broad alluvial-filled valley are date palms, irrigated by water hand-drawn from wells. The dissected character and even summit levels of the Jol (plateau) are clearly seen. Canyon walls along the wadi are 500 to 1000 feet high. Irrigation ditches to direct occasional floods are discernible everywhere on the wadi floor.

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FIG. 4.—A caravan carrying wood to the market in Tarim.

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Fig. 5—This view is practically panoramic with Figure 3. Along the crest of the nearest plateau spur may be seen a distinct white streak, which is the Al Kut road to the coast, distant two miles as the crow flies, five by speedometer. It may be observed that in this direction there is less erosion disruption and greater expanse of coloration planes. The narrowing of the road downcanyon should be noticed.

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Fig. 6—Wall projection. Note the rude palm leg embellishes.

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Near the coast the wadi gradient is considerably steeper than in the central and upper parts, where the slope is only 1 in 1000. There seems to be no local cause to explain the anomaly.[1] Although there are a few small lava flows in the Maseila Valley near the coast, it is obvious from the steepness of the gradient, the size of the valley both above and below them, and the absence of old lake shores that they have not constituted a local base level. Neither does the river cut through abnormally resistant rocks of any other type, which might conceivably restrict erosion.

Usually a stream and its valley decrease in size from mouth to source, except where superimposed on resistant strata. The Hadhramaut drainage system, however, is broad and well incised near the mouth, narrow and less deeply incised in the middle, and much wider and deeper farther upstream than at the coast. In its middle part the main stream is not appreciably larger than its tributaries, and it is suggested that in this region lay the former headwaters of a westward-trending drainage. It seems impossible that the vast quantity of material removed during the creation of the great valley from Tarim westward could have been transported to the sea without more erosion than is evident in the vicinity of the hypothesized piracy, about midway between Tarim and the mouth.

As a result of what seems to have been a gentle epeirogenic movement in the region west of Tarim, both the valley floor and the adjoining plateau slope gently upward in this direction at a gradient of 1 in 700 or 1 in 1000. A gradual uplift in the west and south, which is, moreover, in the direction of rock exposures from which sediments have been removed, would have assisted piracy in bringing about a reversal of drainage. Such a sequence of events would well account for the alluvial fill in the tributaries of the main wadi. As the water wells do not penetrate the valley fill to bedrock, the thickness and distribution of this alluvial deposit in the Hadhramaut–Maseila drainage system are not revealed, but an observer gains an impression that it measures perhaps several tens or even hundreds of feet.

A more detailed picture of the interrelationships between, and relative importance of, epeirogenic uplift and stream piracy will, it is hoped, be gained when the Hadhramaut has been more thoroughly explored. That piracy was accompanied by underground drainage as well as by downcutting is suggested by the porosity of some of the rock strata. Subsequent alluviation, however, has obliterated the former entrenched parts of the valley and thus deprived the observer of many desirable details of physiographic history.

It must be noted, however, that tributaries to the Wadi Hadhramaut to the west of Tarim and also for a short distance to the east

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[1] G. Caton-Thompson and E. W. Gardner: Climate, Irrigation, and Early Man in the Hadhramaut, *Geogr. Journ.*, Vol. 93, 1939, pp. 18–38.

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enter the main stream normally, i.e. the angle between main and tributary streams is acute. This suggests that the present drainage prevailed during the period of tributary incision and contradicts the hypothesis of stream reversal. On the other hand, tributaries in the area thought to be that of the former headwaters of westward drainage join the main wadi as if it once flowed in the opposite direction. 133

The apparently normal direction at which the tributaries west of Tarim join the main wadi cannot readily be explained from the data in hand; the problem requires critical study. However, it is felt that the evidence of abnormal stream profile and the relatively small amount of erosion in the central part of the valley outweigh any argument against change in the direction of flow.

Streams Tributary to the Rub' al Khali

Northward from the east-west drainage divide of the Hadhramaut–Maseila and Hafif systems innumerable slightly incised wadies, in a former extensive tableland, carry intermittent runoff toward the Rub' al Khali desert, where the water is absorbed and the stream channels become choked. The drainage pattern is dendritic; but the main streams, although broadly meandering, maintain a rather uniform direction down the steepest gradient of the plateau surface.

Although little is known of this region and not until recently was it observed by members of the Royal Air Force to be inhabited, it can safely be said that aridity is higher than in the Hadhramaut–Maseila basin, which is favored with annual floods from Yemen, and in the coastal zone, where a number of springs exist.

Streams Tributary to the Coast at Hafif

Eastward from the point where the Wadi Hadhramaut swerves from its east-west course toward the coast a drainage basin of similar trend carries runoff to the Gulf of Aden in the vicinity of Hafif. This drainage area is bounded on the south by steep-gradient streams to the sea, on the west by the Hadhramaut basin, and on the north by the drainage province tributary to the Rub' al Khali. It measures some 140 miles in length from east to west by 80 miles in width; the area is some 11,200 square miles.

The watercourses of the Hafif area are thought to be intermittent. Nowhere is the water table known to reach the surface. Undoubtedly water is obtainable, as in certain parts of the Hadhramaut, by means of wells favorably located in the main drainage lines; for no other source of supply for the people of this sparsely inhabited area is apparent. 312

The drainage pattern exhibits both rectangular and dendritic characteristics, the former being most evident along the main streams. 133

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FIG. 7—Seiyun, looking westwards up the Wadi Hadhramaut toward Shibam (see Fig. 9). The large white building with a dark oval in the foreground is the rasthouse with swimming pool shown in Figure 10. The magnificent palace of the Sultan (Fig. 8) is below and to the right of the rocky promontory against which the town lies. The upper right-hand margin of the photograph shows the dissected plateau in the direction of the Rub' al Khali desert about two miles to the north.

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FIG. 8—Palace of the Sultan in Seiyun. This beautiful building dominates the highest place and is among the most picturesque to be found in the Hadhramaut.

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Fig. 9—Shibam, looking down the Wadi Hadhramaut toward Seiyun (see Fig. 1). Shibam is built on a low hill at the tip of a plateau spur and, for lack of space, grew upward; the buildings are eight to ten stories high. The landlord occupies the upper stories and these parts are whitewashed; the stores whitewash, the wealthier the owner. Note the abandoned fields embanked to prevent runoff of water. The upper right-hand margin shows the plateau topography to the direction of the sea, a hundred miles distant.

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Fig. 10—European guest house at Seiyun. Only one half of the masonry is in view. Most of the compound shown the rear is occupied by a swimming pool.

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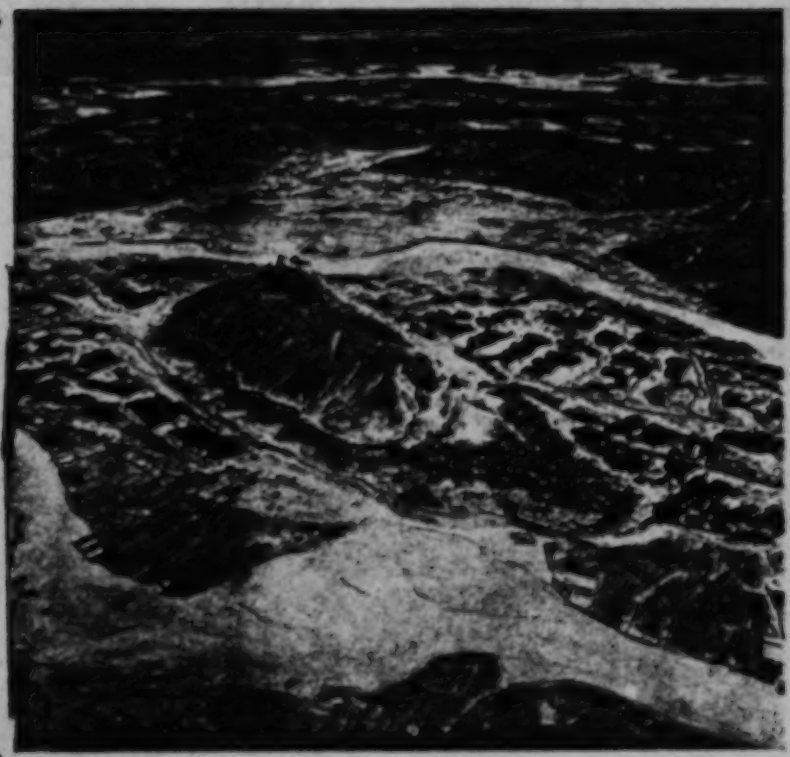

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Pic. 11—Hajarain, the largest city in Wadi Do'an, is on one of the principal caravan routes between Mukalla and the Wadi Hadhramaut. Its area was originally cleared with an axe in darkness. Groves of cultivated date palms and millet fields may be seen amid a series of ancient retaining walls and irrigation ditches. As in other cities of the Hadhramaut, adobe brick is the building material.

Pic. 12—A typical, fortified, Arab settlement on the banks of the Wadi Hajr. The irrigated groves of date palms furnish the main livelihood.

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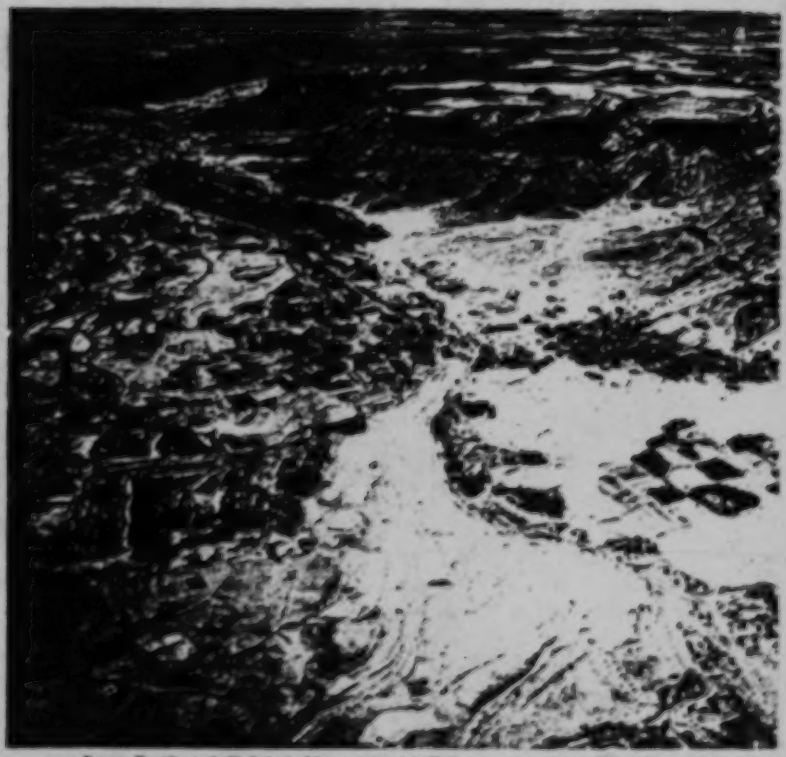

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Pl. 19—Hureidha, in the Wadi 'Amd. Like a majority of the Hadhramaut cities, it is situated in a semi-preserved spot. Both used and abandoned agricultural areas may be observed throughout the broad valley. The view over the cultivated lands mentioned toward the sea and illustrates the steep-walled nature of the drainage system among even the smallest streams.

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Pl. 20—Recently dammed water along Wadi Hajr, near Ashwa, during [illegible] of the pre-Islamic Himyaritic kingdom.

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FIG. 15—Mukalla from the sea. The skyline of the second largest settlement and commercial center on the south coast of Arabia.

133 Gradients are low, not more than 1 in 500 and very probably averaging about 1 in 750.

STREAMS NEAR THE COAST

The area between the coast and the southern margin of the Hadhramaut-Maseila and Hafif basins, some 500 miles long, is drained by short, intermittent, steep-gradient mountain streams, few of which, except certain sections of the Maseila, are perennial. The best known of these is the Wadi Hajr, which enters the Gulf of Aden at Ras al Kalb, 50 miles southwest of Mukalla. Another is the Wadi Mejfa, about the same distance beyond Hajr. Both of them, although they have not been traced to their sources, are reasonably reported to be fed by springs.

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FIG. 16—The harbor of Mukalla. "Main Street" follows the shore of the bay behind the first row of buildings. Mukalla builds most of the locally-owned dhows.

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FIG. 17—Ruins of a pre-Islamic city in the Wadi Masila. The site was chosen for defensive purposes and each house was in itself a fortress.

HOT SPRINGS

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[135] Hot sulphurous springs are widely scattered in the coastal zone, and fairly accurate accounts of many of them are available. They commonly deposit gypsum in quantity. Some of the deposits are so large as to suggest either that activity was more general in the past or that the position of the spring outlets has shifted. The springs may be attributed to the same subterranean conditions that prevail in Yellowstone Park, where descending waters become superheated through close association with uncooled rocks and rise again to the surface.

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[271] Within half a mile of the coast of Hami, east of Mukalla, several hot springs are utilized by the natives for irrigation of date palms and millet and also for drinking. Neither here nor elsewhere does the

[312] FIG. 18—A view in the Wadi Masila where water is present during most of the year. The edge of the Jol appears in the background.

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312 241 361 mineral content of the water seem to affect agriculture adversely. A striking example is seen about five miles north of Shihr where a series of springs depositing sulphur and gypsum have built an impressive mound, on which the village of Tabala stands. Their abundant and continued flow enables extensive irrigation by hand-dug canals and aqueducts and affords a means of livelihood for several hundred

[487 302] FIG. 19—A caravan settling down for the night on the cold and stony Jol in the lengthening shadows of the setting sun. A caravan stops wherever night may overtake it and with little or no cover the Bedouins find a place to rest among the stones and shiver themselves to sleep. A coating of indigo stain with which the Bedouins not uncommonly paint themselves is said to be some defense against the night air.

people. The temperature of these springs on emergence is not far below boiling point, and they are reported to be the hottest on the coast.

At the small village of Harshiat, 3½ miles north of Mukalla, a few tepid sulphurous springs likewise are valuable for their yield. At the village of Gheil ba Wazir, on the inland road between Mukalla and Shihr, is an extensive gypsum flat and also a group of gypsum-depositing springs. Here a tobacco-raising community has sprung up. A part of the arable land is devoted to the growing of dates and millet and the remainder to tobacco, for which, owing to a quality unsurpassed in Southern Arabia, demand exceeds supply.

The small community of Husn Baquidran depends on a limited but constant supply of nongypsiferous sulphur water in the mountains of the Wadi Hajr, 30 miles from the coast. Irrigation is practiced on a small scale. The sites of Sidara and Mahamda, on the Wadi Hajr above Husn Baquidran, were determined by the presence of several groups of sulphur springs that are used for irrigation and consumption.

VEGETATION

132 137 175 Today only the seaward fringe of the Dhufar Coast region, which during the pre-Islamic empires of the Minaeans, Sabaeans, and

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Himyarites was an important export center for incense and myrrh, has enough rainfall to support a thin growth of vegetation, largely incense trees. From this area and the surrounding country, at one time more abundantly watered, the priceless gum was most extensively collected in the past. It is still gathered today in small amounts, according to demand. The gum, which adheres to the bark, is har-

FIG. 20. Caravan loading. The three men at the right are arguing about the disposition of loads.

vested from varieties of the Burseraceae family, *Boswellia Carterii* and *B. Bhau-Dajiana*, divided by the Arabs into four grades.[4] Its value, which ranges from £80 to £10 a ton, depends on such qualities as color (red, green, and brown), size of the gum particles, and degree of adulteration. Just as the rubber gatherers of the Amazon debased latex with pebbles and gravel, so did the Arabs in the heyday of the incense trade, and to some extent even now, admix varying amounts of fine sand with the gum to increase its weight. Between March and August the trees are tapped by knife incision and a milky juice is extracted, which dries in three to five days.

Besides incense trees, a thin and scattered growth of bunch grass, camel's-thorn, and a cedarlike evergreen abundant in some dry wadies is found in the Hadhramaut. Date-palm groves, which cover many square miles, are mainly dependent on irrigation.

Sources of Water Supply

In addition to artesian water and the water obtained from wells, other sources of supply are available. One of these is the *siqaya*, a small, rectangular, concrete tank with a capacity of 20 or 25 gallons erected along caravan routes near towns and maintained by them as a public service. Another is the well or cistern excavated at the base

[4] Freya Stark: The Southern Gates of Arabia, [New York], 1936, pp. 10–11.

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of a broad, gently sloping bedrock drainage surface. The plateau abounds in suitable rock surfaces, and they serve as catchment areas for occasional cloudbursts. Walls, six to eight inches high, fashioned of closely packed but uncemented rock fragments and slabs, are

FIG. 21—Bedouins of Wadi Hajr. Note the attire and appearance: bare feet or sandals; short sarong; cartridge belt; curved dagger; long, black, glistening, oily hair; ever present musket. To the stocks of their antiquated guns, goat skulls are frequently attached, as these are thought to provide greater comfort than the original design.

laid out radially from the well so that surface drainage will converge on it from a wide area.

To transport water, Bedouins use bags of uncut goat skins, tied firmly at the leg and neck openings. For drawing well water, the skin is fashioned into a bucket and attached to a rope passing over a pulley in a crudely constructed scaffolding of palm logs lashed together with coconut-fiber cord. The bucket is raised and lowered by donkeys, cattle, or slaves, with the assistance of an appropriate harness. To augment the lifting power applied to each bucket, it is customary to excavate an incline downward from the mouth of the well, equal in length to the depth of the water table, and it is along such a trench that man and beast plod long, weary hours each day. When a bulging and leaking skin has been lifted slightly above the welltop, it is pulled over and lowered into a catchment basin connected with the local irrigation system.

THE CARAVANS

Many Bedouins, not engaged in agriculture or herding, find occupation in the camel transport system of the Hadhramaut. A man

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usually owns one or two dromedaries and with these joins other tribal associates in moving cargo both to and from the coast. Flour, sugar, rice, tea, cloth, timber, and dates, in which the country is not self-sufficient, are brought to the Hadhramaut from distant lands

FIG. 22—The Sultan of Qishn, accompanied by three Bedouin councilors, is attired in a turban and wears a curved dagger in his belt. Mr. W. H. Ingrams is at the extreme right. Note the Bedouins' well formed features and general attire, especially the sarong, which has been introduced by Hadhrami emigrants returning from the Malay States.

by sailing dhows and tramp steamers. A large part of the cargo, together with locally produced dried fish and fish oil, is distributed by caravan to the interior. Because exports—chiefly skins—are meager, the caravans must make their return journey empty or, at best, only lightly laden. The balance of exchange necessary to provide the excess imports is obtained from the remittances of thousands who have emigrated and are now living abroad, chiefly in the Malay States and along the east coast of Africa.

There are two methods of contracting for the services of a caravan and its many owners, each of whom insists on feeding, caring for, packing, and driving his own beast of burden—either by the day or for a fixed sum between certain points along a prescribed route. The latter plan is preferable, since it precludes any possible benefit to the camel owner from slow travel; but even with an incentive to progress he hesitates to push his animals more than 12 miles a day, and he is skilled in the fabrication of excuses. The men argue at great length about their respective loads before the morning start. A favorite maneuver is to put a slow camel at the head of the line. The inexperienced traveler may also be sidetracked by tales that no

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pasture lies beyond a certain point; or at noonday halts the camels become "temporarily lost."

Moonlit nights are considered most desirable for travel. Camels are grazed wherever pasture is most abundant, regardless of the time of day—the heat may be intense—or the progress of the journey. This would not be necessary if small quantities of fodder, such as millet and hay, were carried. This practice, however, is not popular, owing either to custom or to what may be considered unwarranted expense, despite the fact that the animals could be maintained in superior condition and at the same time be worked harder to a degree that would more than offset the cost of purchased fodder.

On the march camelmen provide for their own maintenance with small amounts of dates, bread, coffee, and tea, which add little to the burden a caravan can transport. Therefore, provided the equipment of a traveling group is not too cumbersome and the personnel not too large, the unit can maintain itself on the march four or five weeks without replenishing supplies. Speed of travel will be governed by local grazing, water supply, and terrain, the condition of the camels, and the "temperament" of the caravan leader—an unknown usually capable of "adjustment."

In the caravans of those not strictly limited in resources, the donkey is invariably included because it is comparatively easy to ride and a more comfortable mount than a camel. Camels can be hired for 1.00 to 1.25 Maria Theresa dollars (the standard currency in the interior) a day and donkeys for about 1.00 dollar.

Bedouin "Warfare"

It is common knowledge that caravans have been both successfully and unsuccessfully raided; but just what tactics the Bedouins employ on such occasions is somewhat of a mystery. At 4.00 a. m. one day a small party was plodding silently through bushes and mist along a broad wadi bottom leading to the sea. Through a knowledge of the prevailing wind as revealed by ripple marks in the sand, the leader cautiously picked his way and at length found a faint trail incised in the bank. About 10.00 a. m. the caravan came to rest in the spotted shade of a leafless camel's-thorn for the customary noontime forage; and while the camels fed on the sharp, crunchy thorns, the Bedouins reclined on the sand in the meager shade of the dry branches.

Without apparent warning the whole camp was suddenly alive, for downwind had come a faint call, which one man had been alert enough to catch. The sharp-eyed Bedouins soon discovered two minute figures on the crest of a distant dune overlooking the caravan route ahead; and it was at once recalled that this route followed a tribal boundary between two groups now rumored to be unfriendly. The

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strangers were assumed to be enemy scouts, the advance guard of a larger fighting force behind some distant dune.

The "ambushed" caravan comprised sixteen Bedouins, only twelve of them armed. This fact, however, the theoretically opposing force was supposed not to know, since it is an unwritten law of the desert that every Bedouin travels with rifle and ammunition. Without hesitation the leader selected three armed men to act as scouts and an unarmed messenger. Hastily the four men washed down a few mouthfuls of food, since they did not know when they would be able to eat again, filled with water from the large reservoir skins some small ones suitable for short, flying trips, and then slipped swiftly off across the sand in a peculiar bowlegged glide. Under cover of a near-by dune the caravan men scrambled to its summit, at once opened fire, and drove the two intruders from view. They then dashed ahead to the dune on which their adversaries had stood and later advanced from hilltop to hilltop parallel to the caravan route and between it and "enemy" territory. In the meantime the camels had been hastily packed and started on the march along the now protected trail, which they followed without intermission until sundown.

The two "enemy" tribesmen were not seen again, and it was concluded that their actions had been misinterpreted. Freedom from molestation during the remainder of the day did not, however, cause the caravan leader to relinquish vigilance. The party was scheduled to pass at about 3.00 p. m. a water hole to one side of the trail and hidden from it by a dune. As a method of precaution an advance guard of four went ahead and, just as the caravan came abreast of this spot, converged on the well from four directions. Although the strategy displayed by the Bedouins and their chief was happily unnecessary, the "shadow" campaign showed how fearless and cautious these men of the desert can be.

Fishers and Ropemakers

During certain of the winter months sardines abound along the Hadhramaut coast, traveling in large schools, which can be seen from the shore as black patches on the surface of the sea. Natives wade out with hand nets or cast from small canoes, making enormous hauls with considerable ease. The sardines are much appreciated by the Bedouins as an addition to their diet of dates, millet, and goat or sheep meat and are eaten either raw or cooked. The fish are taken from the nets, tossed up on the beach to dry, and then packed into large bundles for transport to the interior, where they are used for camel fodder or fertilizer. Fish oil is obtained from that part of the catch which is dumped into pits and allowed to decompose. Sting rays, sharks, porpoises, and lobsters are also taken from the sea; but as the use of lobster is unknown, it is cast back from the nets.

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Halfway up from the coast to the top of the Jol, on the road from Mukalla to Tarim, there is a small spring in a coconut grove where agricultural Bedouins live. These people obtain part of their meager income by collecting and selling herbs that are said to grow only in this vicinity as well as from a flock of goats and from coconuts. They are semi-cave dwellers and have walled up with loose stones rock ledges lacking sufficient overhang. The tribe is deft at making coconut-fiber rope, which they prepare for braiding by carefully pounding the fiber on a rock with a wooden mallet. Here a market comes to the door in the form of caravans going to or from Tarim, and to them the rope is sold or traded.

Emigration and Immigration

Lack of employment and overpopulation in the Hadhramaut have caused large-scale emigration to both the east coast of Africa and the Malay States. Even abroad the tribes show a tendency to congregate, with the result that emigrants customarily establish foreign residence with their relatives and friends. Many Hadhramis return, so that today, after a long period of both emigration and immigration, Malay has become a "second language" in the Hadhramaut.

Some have acquired riches, but no one has expended them in a more notable fashion than Seiyid Abu Bekr al Kaf. His family acquired wealth in Singapore and then returned to the Hadhramaut with the hope that through its efforts the cultural and material status of the region might be improved. Donations were made to the poor, city slums bettered, roads constructed; and small English automobiles, transported by camel across the plateau and assembled in the valley, were introduced. An elaborate guesthouse in Tarim and another in Seiyun were constructed, equipped with imported European furniture, and stocked with food and servants so that a foreign visitor might know that accommodation meeting his standards and needs was available. Recently a difficult truck and automobile road between Tarim and the coast, a distance of 170 miles, was completed by the Al Kaf family without outside assistance and at the cost of many thousands of pounds, to connect the hinterland with the more advanced and better-developed and more easily accessible coastal region. However, the greatest humanitarian achievement in the modernization program of the Hadhramaut, that of the termination of age-old tribal warfare and the spread of peace, was not long ago brought about by Mr. Ingrams, assisted by the influential and wholehearted coöperation of the Al Kaf family. At last the incredible, unceasing warfare of the Hadhramaut, where villages only a few hundred yards apart blazed away at each other month in and month out, has stopped, and caravans are no longer sacked by raiding parties.